QC ABSTRACT

Nameof Work: Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Jalagunte," BBMP, Bangalore.

Sl. No.	Item	Quantity As Per BOQ	Required No's of testes as per frequency	Actual No's of testes as per frequency	Testes
1	Materials	-	1	1	Cement
					Sand,
2	Slab (100mm)	1728.79 Sqm	1	1	Concrete Core Compressive Strength
3	WMM	1988.11 Cum	-	-	-
		Gradation	20	20	-
		AIV	10	10	-
		Shape Test	10	10	-
		Atterberg Limits	20	20	-
4	DBM	432.20 Cum	-	-	-
		Quality of Binder	1	1	-
		AIV	1	1	-
		Shape Test	1	1	-
		Gradation	1	1	-
		Specific Gravity	1	1	-
		Stability of Mix	9	9	-
		Bitumen content	9	9	-
5	BC	889.23 Cum	-	-	-
		Quality of Binder	1	1	-
		AIV	1	1	-
		Shape Test	1	1	-
		Gradation	1	1	-
		Specific Gravity	1	1	-
		Stability of Mix	18	18	
		Bitumen content	18	18	

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 19.01.2022

TEST REPORT

CLIENT	:	**Assistant Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	:	M/S **M S V Construction Company,** Contractor, Bangalore.
NAME OF THE WORK	:	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
SAMPLE ID	:	Cement (Birla OPC 53 Grade)
DATE OF MANUFACTURE		December - 2021
DATE OF TESTING		17.01.2022 to 19.01.2022
SAMPLES SUPPLIED BY	:	AGENCY

The results of the tests conducted on the cement sample are as follows:

Sl.No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 269-2015
1	a) Initial Setting Time	IS-4031 (Part -5)	140 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5)	335 Minutes	Not More than 600 Minutes
2	Soundness	IS-4031 (Part 3) by the Le-Chatelier method	2 mm	Not more than 10 mm
3	Standard Consistency	IS-4031 (Part -4)	31.00 %	-

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Authorised Signatory

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22

Date : 19.01.2022

TEST REPORT ON FINE AGGREGATES (SAND)

lient : **Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.**

gency : **M/S M S V Construction Company, Contractor, Bangalore.**

Name of Work : Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.

Date of Testing : 19.01.2022

S Code : IS 383:2016

: IS 2386 (Part 1):1963(RA 2011)

Material : Sand

Total Wt. of Aggregates in gms **1000**

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits For Zone-II
10	0	0	0	100	100
4.75	91	9.10	9.10	90.9	90-100
2.36	123	12.30	21.40	78.6	75-100
1.18	178	17.80	39.20	60.8	55-90
600 Micron	168	16.80	56.00	44.0	35-59
300 Micron	265	26.50	82.50	17.5	8-30
150 Micron	139	13.90	96.40	3.6	0-10

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22

Date : 19.01.2022

TEST REPORT ON FINE AGGREGATES (SAND)
IS 2116-1980

Client :Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.

Agency : M/S M S V Construction Company, Contractor, Bangalore.

Name of Work : Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.

Date of Testing : 19.01.2022

Material : Sand - Masonry

Total wt. of aggregates in gms = **1000**

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits as per IS 2116-1980
4.75	0	0.00	0.00	100.0	100
2.36	16	1.60	1.60	98.4	90-100
1.18	40	4.00	5.60	94.4	70-100
600 Micron	80	8.00	13.60	86.4	40-100
300 Micron	248	24.80	38.40	61.6	5-70
150 Micron	491	49.10	87.50	12.5	0-15

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 24.01.2022

PRECAST SLAB 100mm Thick(CORE) TEST REPORT

Client	:	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore
Contractor	:	M/S M S V Construction Company, Contractor, Bangalore.
Name of Work	:	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
No.of Sample Tested	:	03
Date of Testing	:	24.01.2022
Techinical Reference	:	IS:516-1959 (Reaffirmed 1999), SP-24:1983.
Grade of Concrete	:	M_{20}

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50.00	86.00	0.375	2220.77	1.72	0.970	31.83	16.21	17.51	16.98	21.22
2	50.00	83.00	0.386	2368.53	1.66	0.963	32.25	16.42	17.74	17.09	21.36
3	50.00	85.00	0.405	2426.64	1.70	0.968	30.90	15.74	17.00	16.45	20.56

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22

Date :16.03.2022

GRADATION FOR WMM

Client : **Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.**

Agency : **M/S M S V Construction Company, Contractor, Bangalore.**

Name of Work :Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.

IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing :16.03.2022

Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	174	174	1.7	98.3	95-100
22.4	2531	2705	27.1	73.0	60-80
11.2	2140	4845	48.5	51.6	40-60
4.75	1843	6688	66.9	33.1	25-40
2.36	1188	7876	78.8	21.2	15-30
0.600	580	8456	84.6	15.4	8-22
0.075	1229	9685	96.9	3.1	0-5

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Name of Work :Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.

IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing :16.03.2022

Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	180	180	1.8	98.2	95-100
22.4	2520	2700	27.0	73.0	60-80
11.2	2152	4852	48.5	51.5	40-60
4.75	1832	6684	66.8	33.2	25-40
2.36	1185	7869	78.7	21.3	15-30
0.600	621	8490	84.9	15.1	8-22
0.075	1239	9729	97.3	2.7	0-5

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Date of Testing :16.03.2022

Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	155	155	1.6	98.5	95-100
22.4	2532	2687	26.9	73.1	60-80
11.2	2150	4837	48.4	51.6	40-60
4.75	1844	6681	66.8	33.2	25-40
2.36	1197	7878	78.8	21.2	15-30
0.600	585	8463	84.6	15.4	8-22
0.075	1225	9688	96.9	3.1	0-5

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Date of Testing :16.03.2022

Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	187	187	1.9	98.1	95-100
22.4	2522	2709	27.1	72.9	60-80
11.2	2163	4872	48.7	51.3	40-60
4.75	1843	6715	67.2	32.9	25-40
2.36	1175	7890	78.9	21.1	15-30
0.600	622	8512	85.1	14.9	8-22
0.075	1234	9746	97.5	2.5	0-5

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IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing :17.03.2022

Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	184	184	1.8	98.2	95-100
22.4	2533	2717	27.2	72.8	60-80
11.2	2155	4872	48.7	51.3	40-60
4.75	1843	6715	67.2	32.9	25-40
2.36	1182	7897	79.0	21.0	15-30
0.600	578	8475	84.8	15.3	8-22
0.075	1236	9711	97.1	2.9	0-5

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Date of Testing :17.03.2022

Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	200	200	2.0	98.0	95-100
22.4	2539	2739	27.4	72.6	60-80
11.2	2169	4908	49.1	50.9	40-60
4.75	1839	6747	67.5	32.5	25-40
2.36	1179	7926	79.3	20.7	15-30
0.600	629	8555	85.6	14.5	8-22
0.075	1232	9787	97.9	2.1	0-5

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Date of Testing :17.03.2022

Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	171	171	1.7	98.3	95-100
22.4	2160	2331	23.3	76.7	60-80
11.2	2456	4787	47.9	52.1	40-60
4.75	1838	6625	66.3	33.8	25-40
2.36	1181	7806	78.1	21.9	15-30
0.600	625	8431	84.3	15.7	8-22
0.075	1232	9663	96.6	3.4	0-5

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Date of Testing :17.03.2022

Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	163	163	1.6	98.4	95-100
22.4	2563	2726	27.3	72.7	60-80
11.2	2111	4837	48.4	51.6	40-60
4.75	1841	6678	66.8	33.2	25-40
2.36	1181	7859	78.6	21.4	15-30
0.600	580	8439	84.4	15.6	8-22
0.075	1230	9669	96.7	3.3	0-5

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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

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An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 18.03.2022

GRADATION FOR WMM

Client : Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.

Agency : M/S M S V Construction Company, Contractor, Bangalore.

Name of Work :Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.

IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing : 18.03.2022

Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	197	197	2.0	98.0	95-100
22.4	2530	2727	27.3	72.7	60-80
11.2	2165	4892	48.9	51.1	40-60
4.75	1840	6732	67.3	32.7	25-40
2.36	1180	7912	79.1	20.9	15-30
0.600	626	8538	85.4	14.6	8-22
0.075	1236	9774	97.7	2.3	0-5

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Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	162	162	1.6	98.4	95-100
22.4	2536	2698	27.0	73.0	60-80
11.2	2155	4853	48.5	51.5	40-60
4.75	1845	6698	67.0	33.0	25-40
2.36	1189	7887	78.9	21.1	15-30
0.600	582	8469	84.7	15.3	8-22
0.075	1232	9701	97.0	3.0	0-5

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Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	182	182	1.8	98.2	95-100
22.4	2533	2715	27.2	72.9	60-80
11.2	2163	4878	48.8	51.2	40-60
4.75	1844	6722	67.2	32.8	25-40
2.36	1183	7905	79.1	21.0	15-30
0.600	620	8525	85.3	14.8	8-22
0.075	1232	9757	97.6	2.4	0-5

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Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	191	191	1.9	98.1	95-100
22.4	2536	2727	27.3	72.7	60-80
11.2	2150	4877	48.8	51.2	40-60
4.75	1845	6722	67.2	32.8	25-40
2.36	1189	7911	79.1	20.9	15-30
0.600	582	8493	84.9	15.1	8-22
0.075	1232	9725	97.3	2.8	0-5

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Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	175	175	1.8	98.3	95-100
22.4	2533	2708	27.1	72.9	60-80
11.2	2166	4874	48.7	51.3	40-60
4.75	1844	6718	67.2	32.8	25-40
2.36	1188	7906	79.1	20.9	15-30
0.600	620	8526	85.3	14.7	8-22
0.075	1229	9755	97.6	2.5	0-5

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Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	183	183	1.8	98.2	95-100
22.4	2560	2743	27.4	72.6	60-80
11.2	2130	4873	48.7	51.3	40-60
4.75	1830	6703	67.0	33.0	25-40
2.36	1196	7899	79.0	21.0	15-30
0.600	595	8494	84.9	15.1	8-22
0.075	1235	9729	97.3	2.7	0-5

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Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	159	159	1.6	98.4	95-100
22.4	2522	2681	26.8	73.2	60-80
11.2	2163	4844	48.4	51.6	40-60
4.75	1843	6687	66.9	33.1	25-40
2.36	1175	7862	78.6	21.4	15-30
0.600	622	8484	84.8	15.2	8-22
0.075	1234	9718	97.2	2.8	0-5

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Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	199	199	2.0	98.0	95-100
22.4	2539	2738	27.4	72.6	60-80
11.2	2169	4907	49.1	50.9	40-60
4.75	1839	6746	67.5	32.5	25-40
2.36	1179	7925	79.3	20.8	15-30
0.600	629	8554	85.5	14.5	8-22
0.075	1232	9786	97.9	2.1	0-5

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Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	169	169	1.7	98.3	95-100
22.4	2539	2708	27.1	72.9	60-80
11.2	2169	4877	48.8	51.2	40-60
4.75	1839	6716	67.2	32.8	25-40
2.36	1179	7895	79.0	21.1	15-30
0.600	629	8524	85.2	14.8	8-22
0.075	1232	9756	97.6	2.4	0-5

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Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	174	174	1.7	98.3	95-100
22.4	2532	2706	27.1	72.9	60-80
11.2	2155	4861	48.6	51.4	40-60
4.75	1845	6706	67.1	32.9	25-40
2.36	1175	7881	78.8	21.2	15-30
0.600	630	8511	85.1	14.9	8-22
0.075	1230	9741	97.4	2.6	0-5

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Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	188	188	1.9	98.1	95-100
22.4	2545	2733	27.3	72.7	60-80
11.2	2165	4898	49.0	51.0	40-60
4.75	1865	6763	67.6	32.4	25-40
2.36	1191	7954	79.5	20.5	15-30
0.600	578	8532	85.3	14.7	8-22
0.075	1242	9774	97.7	2.3	0-5

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ಬಿ ದಾಸರಹಳ್ಳಿ ಉಪ ವಿಭಾಗ

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 21.03.2022

GRADATION FOR WMM

Client : Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.

Agency : M/S M S V Construction Company, Contractor, Bangalore.

Name of Work :Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.

IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing : 21.03.2022

Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	196	196	2.0	98.0	95-100
22.4	2533	2729	27.3	72.7	60-80
11.2	2163	4892	48.9	51.1	40-60
4.75	1844	6736	67.4	32.6	25-40
2.36	1183	7919	79.2	20.8	15-30
0.600	620	8539	85.4	14.6	8-22
0.075	1232	9771	97.7	2.3	0-5

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 16.03.2022

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	**M/S M S V Construction Company, Contractor, Bangalore.**
Name of Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
BIS code:	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	16.03.2022

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 400.12
1	Flakiness Index %	11.20	11.50	Combined Flakiness & Elongation index Max 35%
2	Elongation Index %	12.70	13.10	
	Combined Flakiness & Elongation index	23.90	24.60	

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1	Flakiness Index %	12.10	11.90	Combined Flakiness & Elongation index Max 35%
2	Elongation Index %	13.60	13.20	
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BIS code:	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	17.03.2022

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 400.12
1	Flakiness Index %	11.30	11.40	Combined Flakiness & Elongation index Max 35%
2	Elongation Index %	12.50	12.90	
	Combined Flakiness & Elongation index	23.80	24.30	

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Date of Testing	19.03.2022

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 400.12
1	Flakiness Index %	12.60	12.50	Combined Flakiness & Elongation index Max 35%
2	Elongation Index %	13.10	13.20	
	Combined Flakiness & Elongation index	25.70	25.70	

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BIS code:	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	21.03.2022

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 400.12
1	Flakiness Index %	11.30	11.40	Combined Flakiness & Elongation index Max 35%
2	Elongation Index %	12.50	12.90	
	Combined Flakiness & Elongation index	23.80	24.30	

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 16.03.2022

Aggregate Impact Value

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	16.03.2022

Sl No.	Details	Test No. 1	Test No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	379	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	88	89	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	292	290	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	23.16	23.48	23.32

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

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Date: 16.03.2022

Aggregate Impact Value

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	16.03.2022

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	382	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	87	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	295	294	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.77	23.04	22.91

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

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ಬಿ ದಾಸರಹಳ್ಳಿ ಉಪ ವಿಭಾಗ

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

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An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 17.03.2022

Aggregate Impact Value

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	17.03.2022

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	381	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	294	293	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.63	23.10	22.86

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

Note:

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 17.03.2022

Aggregate Impact Value

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	17.03.2022

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	381	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	85	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	296	296	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.31	22.51	22.41

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

Note:

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 18.03.2022

Aggregate Impact Value

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	18.03.2022

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	384	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	294	296	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.63	22.92	22.77

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

Note:

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Aggregate Impact Value

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	18.03.2022

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	378	380	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	294	294	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.22	22.63	22.43

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

Note:

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 19.03.2022

Aggregate Impact Value

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	19.03.2022

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	381	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	295	294	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.57	23.04	22.80

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

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Date: 19.03.2022

Aggregate Impact Value

Client	**Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	**M/S M S V Construction Company, Contractor, Bangalore.**
Name of the Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	19.03.2022

Sl No.	Details	Test No. 1	Test No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	381	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	294	293	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.63	23.10	22.86

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 21.03.2022

Aggregate Impact Value

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	21.03.2022

Sl No.	Details	Test No. 1	Test No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	384	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	294	296	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.63	22.92	22.77

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 21.03.2022

Aggregate Impact Value

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	21.03.2022

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	381	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	294	293	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.63	23.10	22.86

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22

Date :16.03.2022

ATTERBERG LIMITS TEST FOR WMM

Client : Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency : M/S M S V Construction Company, Contractor, Bangalore.
Name of Work : Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.

IS Code: : IS 2720(Part 5):1985
Date of Testing : 1
Material Type 14.03.2022 to 16.03.2022

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	20.00	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date :16.03.2022

ATTERBERG LIMITS TEST FOR WMM

Client : Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.

Agency : M/S M S V Construction Company, Contractor, Bangalore.

Name of Work : Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.

IS Code: : IS 2720(Part 5):1985

Date of Testing : 1

Material Type 14.03.2022 to 16.03.2022

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	19.00	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

Note:

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ATTERBERG LIMITS TEST FOR WMM

Client : Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency : M/S M S V Construction Company, Contractor, Bangalore.
Name of Work : Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
IS Code: : IS 2720(Part 5):1985
Date of Testing : 1
Material Type 14.03.2022 to 16.03.2022

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	19.50	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

Note:
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ATTERBERG LIMITS TEST FOR WMM

Client : Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.

Agency : M/S M S V Construction Company, Contractor, Bangalore.

Name of Work : Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.

IS Code: : IS 2720(Part 5):1985

Date of Testing : 1

Material Type 14.03.2022 to 16.03.2022

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	20.50	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

Note:

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date :17.03.2022

ATTERBERG LIMITS TEST FOR WMM

Client : Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.

Agency : M/S M S V Construction Company, Contractor, Bangalore.

Name of Work : Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.

IS Code: : IS 2720(Part 5):1985

Date of Testing : 15.03.2022 to 17.03.2022

Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	19.50	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

Note:

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22

Date :17.03.2022

ATTERBERG LIMITS TEST FOR WMM

Client : Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency : M/S M S V Construction Company, Contractor, Bangalore.
Name of Work : Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.

IS Code: : IS 2720(Part 5):1985
Date of Testing : 15.03.2022 to 17.03.2022
Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	20.00	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date :17.03.2022

ATTERBERG LIMITS TEST FOR WMM

Client : Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency : M/S M S V Construction Company, Contractor, Bangalore.
Name of Work : Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.

IS Code: : IS 2720(Part 5):1985
Date of Testing : 15.03.2022 to 17.03.2022
Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	19.00	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date :17.03.2022

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Agency : M/S M S V Construction Company, Contractor, Bangalore.
Name of Work : Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
IS Code: : IS 2720(Part 5):1985
Date of Testing : 15.03.2022 to 17.03.2022
Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	21.00	-
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Date : 18.03.2022

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Agency : M/S M S V Construction Company, Contractor, Bangalore.

Name of Work : Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.

IS Code: : IS 2720(Part 5):1985

Date of Testing : 16.03.2022 to 18.03.2022

Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	19.50	-
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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

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Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

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JobNo: CACE/BBMP/MSV/W.No.14/2021-22

Date : 04.04.2022

TEST RESULTS OF AGGREGATE SHAPE TEST
(Flakiness & Elongation)

Client : Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.

Agency : M/S M S V Construction Company, Contractor, Bangalore.

Name of work : Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.

BIS Code : IS 2386 Part (1):1963

Date of Test : 04.04.2022

Type of Mix : Dense Graded Bituminous Macadam

Sl.No.	Flakiness Index Value(%)	Elongation Index Value(%)	Total(Combined Flakiness and Elongation)(%)	Requirements
1	12.40	12.90	25.30	Maximum allowable Combined Flakiness and Elongation Indices for Dense Graded Bituminous Macadam is 35% as per Table 500.8 MORTH Specification.
2	12.70	13.40	26.10	

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 04.04.2022

Aggregate Gradation Test

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
BIS Code	IS 2386(Part 1):1963(RA 2011)
Sample I / D	Hot mix Plant, Bangalore.
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	04.04.2022

Total Weight of Sample: **10000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.10	Remarks
37.50	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
26.50	728	7.3	7.28	92.72	90 - 100	
19.00	1265	12.7	19.93	80.07	71 - 95	
13.20	1381	13.8	33.74	66.26	56 - 80	
4.75	2511	25.1	58.85	41.15	38 - 54	
2.36	1097	11.0	69.82	30.18	28 - 42	
0.300	1318	13.2	83.00	17.00	7 - 21	
0.075	1165	11.7	94.65	5.35	2 - 8	

Total Weight of Sample: **10000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.10	Remarks
37.5	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
26.5	599	6.0	5.99	94.01	90 - 100	
19	1418	14.2	20.17	79.83	71 - 95	
13.2	1141	11.4	31.58	68.42	56 - 80	
4.75	2418	24.2	55.76	44.24	38 - 54	
2.360	1164	11.6	67.40	32.60	28 - 42	
0.300	1311	13.1	80.51	19.49	7 - 21	
0.075	1181	11.8	92.32	7.68	2 - 8	

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JobNo: CACE/BBMP/MSV/W.No.14/2021-22 Date : 04.04.2022

TEST RESULTS OF AGGREGATE IMPACT VALUE

Client : Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.

Agency : M/S M S V Construction Company, Contractor, Bangalore.

Name of work : Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.

Source / Location : Hot Mix Plant, Bangalore

BIS Code : IS 2386 Part (4):1963

Type of Mix : Dense Graded Bituminous Macadam

Date of test : 04.04.2022

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W1 g	380	385	
2	Weight of agregate passing 2.36 mm sieve after the test = W2 g	87	89	
3	Weight of aggregate retained 2.36 mm sieve after the test = W3 g	293	296	
5	Aggregate Impact value = percent fines 100* (W2/W1) percent	22.89	23.12	**23.01**

Comments:

→ Maximum allowable Aggregate Impact value for Dense Graded Bituminous Macadam is 27% (Table 500-8 of MORTH specification)

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Job No: CACE/BBMP/MSV/W.No.14/2021-22 Date: **04.04.2022**

TEST REPORT ON PAVING BITUMEN

Client	**Assistant Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.
Agency	M/S **M S V Construction Company,** Contractor, Bangalore.
Name of work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
BIS Code	IS 73:2013,IS 1203:1978, IS 1208:1978, IS 1205:1978, IS1448(P-69):1969
Date of Testing	**04.04.2022**
Type of Mix	**Dense Graded Bituminous Macadam , VG 30**
Source of Location	**Hot Mix Plant**

The results of the tests conducted on the bitumen sample using for Dense Graded Bituminous Macadam

Sl.No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 0C, 100gms, 5sec, 1/10 mm	59	Min 45
2	Softening point, 0C	55	Min 47
3	Ductility at 250C, cm	>100	Min40
4	Flash Point, 0C	280	Min 220

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 06.04.2022

Specific Gravity And Water Absorption Test

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
BIS Code	IS 2386(Part 3):1963
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	04.04.2022 to 06.04.2022

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2023	2021	2024	
2	Weight of basket suspended in water	W_2 g	757	758	756	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1266	1263	1268	
4	Weight of saturated surface dry aggregate in air	W_3 g	2017	2016	2015	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	751	753	747	
6	Weight of oven dried aggregate	W_4 g	2007	2007	2005	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.672	2.665	2.684	2.674
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.709	2.698	2.720	2.709
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.50%	0.45%	0.50%	0.48%

Comments:

→ Maximum allowable Aggregate Water absorption value for Dense Graded Bituminous Macadam is 2.0%(As per MORTH table 500.8)

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 11.04.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer, Maruthisevanagara Sub Division, BBMP, Bangalore.**
Agency	:	M/S **M S V Construction Company,** Contractor, Bangalore.
Name of the Work	:	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	11.04.2022

The results of the tests conducted on the Dense Graded Bituminous Macadam mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.81	10.22	9 Kn (min)
2	Marshal flow, mm	3.86	3.58	2 – 4
3	Percent air voids in Mineral Aggregate	13.97	14.35	13 – 15
4	Voids in Compacted Mix	3.48	4.26	3 – 6
5	Percent Voids filled with Bitumen	68.19	69.57	65 - 75
6	Density, g/cc	2.25	2.27	--

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 11.04.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	M/S **M S V Construction Company,** Contractor, Bangalore.
Name of the Work	:	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	11.04.2022

The results of the tests conducted on the Dense Graded Bituminous Macadam mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.44	10.37	9 Kn (min)
2	Marshal flow, mm	2.76	3.57	2 – 4
3	Percent air voids in Mineral Aggregate	13.77	14.03	13 – 15
4	Voids in Compacted Mix	3.80	4.22	3 – 6
5	Percent Voids filled with Bitumen	68.98	69.55	65 - 75
6	Density, g/cc	2.26	2.27	--

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 12.04.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	M/S **M S V Construction Company,** Contractor, Bangalore.
Name of the Work	:	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	12.04.2022

The results of the tests conducted on the Dense Graded Bituminous Macadam mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.60	10.41	9 Kn (min)
2	Marshal flow, mm	2.79	3.65	2 – 4
3	Percent air voids in Mineral Aggregate	13.48	14.54	13 – 15
4	Voids in Compacted Mix	3.69	4.41	3 – 6
5	Percent Voids filled with Bitumen	69.96	71.26	65 - 75
6	Density, g/cc	2.25	2.27	--

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TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	M/S **M S V Construction Company,** Contractor, Bangalore.
Name of the Work	:	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	12.04.2022

The results of the tests conducted on the Dense Graded Bituminous Macadam mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.52	10.09	9 Kn (min)
2	Marshal flow, mm	3.25	3.81	2 – 4
3	Percent air voids in Mineral Aggregate	13.79	14.35	13 – 15
4	Voids in Compacted Mix	3.84	4.26	3 – 6
5	Percent Voids filled with Bitumen	68.91	69.57	65 - 75
6	Density, g/cc	2.25	2.24	--

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 13.04.2022

TEST REPORT ON STABILITY OF MIX

Client	:	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	:	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	13.04.2022

The results of the tests conducted on the Dense Graded Bituminous Macadam mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.75	10.29	9 Kn (min)
2	Marshal flow, mm	2.66	3.79	2 – 4
3	Percent air voids in Mineral Aggregate	13.77	14.33	13 – 15
4	Voids in Compacted Mix	3.82	4.24	3 – 6
5	Percent Voids filled with Bitumen	68.89	69.55	65 - 75
6	Density, g/cc	2.23	2.27	--

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BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX AASHTO T 164 & AASHTO T 30

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore
Agency	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
Date of Testing	11.04.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	477.5	477
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	22.50	23.00
7. Bitumen content in %	4.50	4.60
8. Average	4.55	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	35.5	35.5	7.4	92.6	90 - 100
19	74.1	109.6	23.0	77.0	71 - 95
13.2	66.5	176.1	36.9	63.1	56 - 80
4.75	75	251.1	52.6	47.4	38 - 54
2.360	96.5	347.6	72.8	27.2	28 - 42
0.300	96.1	443.7	92.9	7.1	7 - 21
0.075	21.5	465.2	97.4	2.6	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	36.4	36.4	7.6	92.4	90 - 100
19	74.3	110.7	23.2	76.8	71 - 95
13.2	66.5	177.2	37.1	62.9	56 - 80
4.75	84.60	261.8	54.9	45.1	38 - 54
2.360	78.5	340.3	71.3	28.7	28 - 42
0.300	98.3	438.6	91.9	8.1	7 - 21
0.075	23.5	462.1	96.9	3.1	2 - 8

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No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 11.04.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX

AASHTO T 164 & AASHTO T 30

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore
Agency	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
Date of Testing	11.04.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	477.5	477.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	22.50	22.50
7. Bitumen content in %	4.50	4.50
8. Average	4.50	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	34.5	34.5	7.2	92.8	90 - 100
19	74.1	108.6	22.7	77.3	71 - 95
13.2	66.2	174.8	36.6	63.4	56 - 80
4.75	84.9	259.7	54.4	45.6	38 - 54
2.360	76.2	335.9	70.3	29.7	28 - 42
0.300	96.9	432.8	90.6	9.4	7 - 21
0.075	22.3	455.1	95.3	4.7	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	36.2	36.2	7.6	92.4	90 - 100
19	73.5	109.7	23.0	77.0	71 - 95
13.2	67.8	177.5	37.2	62.8	56 - 80
4.75	84.80	262.3	54.9	45.1	38 - 54
2.360	78.5	340.8	71.4	28.6	28 - 42
0.300	98.6	439.4	92.0	8.0	7 - 21
0.075	28.1	467.5	97.9	2.1	2 - 8

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 12.04.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX

AASHTO T 164 & AASHTO T 30

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore
Agency	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
Date of Testing	12.04.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	476.5	477
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	23.50	23.00
7. Bitumen content in %	4.70	4.60
8. Average	4.65	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	35.2	35.2	7.4	92.6	90 - 100
19	74.1	109.3	22.9	77.1	71 - 95
13.2	65.1	174.4	36.6	63.4	56 - 80
4.75	84.3	258.7	54.3	45.7	38 - 54
2.360	76.5	335.2	70.3	29.7	28 - 42
0.300	96.1	431.3	90.5	9.5	7 - 21
0.075	21.1	452.4	94.9	5.1	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	37.2	37.2	7.8	92.2	90 - 100
19	73.2	110.4	23.1	76.9	71 - 95
13.2	66.9	177.3	37.2	62.8	56 - 80
4.75	83.50	260.8	54.7	45.3	38 - 54
2.360	78.9	339.7	71.2	28.8	28 - 42
0.300	98.9	438.6	91.9	8.1	7 - 21
0.075	22.3	460.9	96.6	3.4	2 - 8

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BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX

AASHTO T 164 & AASHTO T 30

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore
Agency	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
Date of Testing	12.04.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	477	477
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	23.00	23.00
7. Bitumen content in %	4.60	4.60
8. Average	4.60	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	35.1	35.1	7.4	92.6	90 - 100
19	72.9	108	22.6	77.4	71 - 95
13.2	66.8	174.8	36.6	63.4	56 - 80
4.75	83.8	258.6	54.2	45.8	38 - 54
2.360	76.5	335.1	70.3	29.7	28 - 42
0.300	96.2	431.3	90.4	9.6	7 - 21
0.075	21.2	452.5	94.9	5.1	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	36.3	36.3	7.6	92.4	90 - 100
19	73.2	109.5	23.0	77.0	71 - 95
13.2	66.1	175.6	36.8	63.2	56 - 80
4.75	83.50	259.1	54.3	45.7	38 - 54
2.360	78.2	337.3	70.7	29.3	28 - 42
0.300	91.2	428.5	89.8	10.2	7 - 21
0.075	21.2	449.7	94.3	5.7	2 - 8

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BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX

AASHTO T 164 & AASHTO T 30

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore
Agency	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
Date of Testing	13.04.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	477.5	477.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	22.50	22.50
7. Bitumen content in %	4.50	4.50
8. Average	4.50	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	34.9	34.9	7.3	92.7	90 - 100
19	73.9	108.8	22.8	77.2	71 - 95
13.2	66	174.8	36.6	63.4	56 - 80
4.75	84	258.8	54.2	45.8	38 - 54
2.360	76	334.8	70.1	29.9	28 - 42
0.300	96.8	431.6	90.4	9.6	7 - 21
0.075	21.6	453.2	94.9	5.1	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	37.7	37.7	7.9	92.1	90 - 100
19	73.4	111.1	23.3	76.7	71 - 95
13.2	66.8	177.9	37.3	62.7	56 - 80
4.75	84.50	262.4	55.0	45.0	38 - 54
2.360	78.6	341	71.4	28.6	28 - 42
0.300	98.5	439.5	92.0	8.0	7 - 21
0.075	23.4	462.9	96.9	3.1	2 - 8

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 13.04.2022

Specific Gravity And Water Absorption Test

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
BIS Code	IS 2386(Part 3):1963
Type of Mix	Bituminous Concrete
Date of Testing	11.04.2022 to 13.04.2022

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2022	2023	2026	
2	Weight of basket suspended in water	W_2 g	755	758	756	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1267	1265	1270	
4	Weight of saturated surface dry aggregate in air	W_3 g	2018	2019	2023	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	755	754	753	
6	Weight of oven dried aggregate	W_4 g	2011	2010	2013	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.678	2.666	2.673	2.672
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.703	2.698	2.709	2.703
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.35%	0.45%	0.50%	0.43%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%(MORTH table 500.16)

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 11.04.2022

Aggregate Impact Value

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
BIS Code	IS 2386(Part 4):1963
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	11.04.2022

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	383	386	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	83.5	85.5	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	299.5	300.5	
4	Aggregate Impact value = percent fines 100* (W_2/W_1) percent	21.80	22.15	21.98

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%(MORTH table no.500.16)

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 11.04.2022

Aggregate Gradation Test

IS : 2386 Part I

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
BIS Code	IS 2386(Part 1):1963
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	11.04.2022

Total Weight of Sample: 5000 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	422	8.44	8.44	91.56	90 - 100	
9.5	482	9.64	18.08	81.92	70 - 88	
4.75	636	12.72	30.80	69.20	53 - 71	
2.36	685	13.70	44.50	55.50	42 - 58	
1.18	525	10.50	55.00	45.00	34 - 48	
0.600	549	10.98	65.98	34.02	26 - 38	
0.300	491	9.82	75.80	24.20	18 - 28	
0.150	371	7.42	83.22	16.78	12 - 20	
0.075	485	9.70	92.92	7.08	4 - 10	

Total Weight of Sample: 5000 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	432	8.64	8.64	91.36	90 - 100	
9.5	539	10.78	19.42	80.58	70 - 88	
4.75	685	13.70	33.12	66.88	53 - 71	
2.36	533	10.66	43.78	56.22	42 - 58	
1.18	569	11.38	55.16	44.84	34 - 48	
0.600	549	10.98	66.14	33.86	26 - 38	
0.300	686	13.72	79.86	20.14	18 - 28	
0.150	199	3.98	83.84	16.16	12 - 20	
0.075	478	9.56	93.40	6.60	4 - 10	

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 11.04.2022

TEST REPORT

Client	:	**Assistant Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	M/S **M S V Construction Company,** Contractor, Bangalore.
Name of the work	:	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
IS Code	:	IS 73:2013, IS 1203:1978(RA 2008), IS 1205:1978(RA 2009), IS 1208:1978(RA 2009), IS 1209:1978(RA 2009)
Source of location	:	Hot mix Plant, Bangalore, VG 30
Date of testing	:	11.04.2022

The results of the tests conducted on the bitumen sample using for Bituminous Concrete

Sl. No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	57	Min 45
2	Softening point, ^{0}C	55	Min. 47
3	Ductility at 27^{0}C, cm	> 101	Min. 40
4	Flash Point, ^{0}C	279	Min. 220

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 11.04.2022

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	M/S M S V Construction Company, Contractor, Bangalore.
Name of Work	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Bituminous Concrete
Date of Testing	11.04.2022

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 500.16
1	Flakiness Index	12.2	12.7	Combined Flakiness & Elongation index Max 35%
2	Elongation Index	13.1	13.2	
	Combined Flakiness & Elongation index	25.30	25.90	

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 18.04.2022

TEST REPORT ON STABILITY OF MIX

Client	:	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	:	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	18.04.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No.	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	10.32	9.45	9 Kn (min)
2	Marshal flow, mm	3.56	2.94	2 – 4
3	Percent air voids in Mineral Aggregate	13.34	14.35	13 – 15
4	Voids in Compacted Mix	3.91	4.51	3 – 6
5	Percent Voids filled with Bitumen	70.1	71.20	65 - 75
6	Density, g/cc	2.23	2.25	--

Note:

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⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 61, Sebika Nilaya, Opp. Vidia Poorna Prajna School,
... Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591018506, GSTIN: 29CNNPS0510K1ZB, Email: civilaimconsultants@gmail.com

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 18.04.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	M/S **M S V Construction Company,** Contractor, Bangalore.
Name of the Work	:	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	18.04.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	10.12	10.82	9 Kn (min)
2	Marshal flow, mm	3.01	3.15	2 – 4
3	Percent air voids in Mineral Aggregate	13.94	14.25	13 – 15
4	Voids in Compacted Mix	3.98	4.51	3 – 6
5	Percent Voids filled with Bitumen	69.43	69.88	65 - 75
6	Density, g/cc	2.22	2.23	--

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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 19.04.2022

TEST REPORT ON STABILITY OF MIX

Client	:	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	M/S M S V Construction Company, Contractor, Bangalore.
Name of the Work	:	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	19.04.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.65	9.85	9 Kn (min)
2	Marshal flow, mm	3.33	2.54	2 – 4
3	Percent air voids in Mineral Aggregate	13.65	14.25	13 – 15
4	Voids in Compacted Mix	3.87	4.61	3 – 6
5	Percent Voids filled with Bitumen	70.21	71.51	65 - 75
6	Density, g/cc	2.25	2.26	--

Note:

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 19.04.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	M/S **M S V Construction Company,** Contractor, Bangalore.
Name of the Work	:	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	19.04.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.84	9.59	9 Kn (min)
2	Marshal flow, mm	3.21	2.79	2 – 4
3	Percent air voids in Mineral Aggregate	13.42	14.53	13 – 15
4	Voids in Compacted Mix	3.36	4.61	3 – 6
5	Percent Voids filled with Bitumen	69.92	68.52	65 - 75
6	Density, g/cc	2.25	2.25	--

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Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 20.04.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	M/S **M S V Construction Company,** Contractor, Bangalore.
Name of the Work	:	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	20.04.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.76	9.45	9 Kn (min)
2	Marshal flow, mm	3.64	2.84	2 – 4
3	Percent air voids in Mineral Aggregate	13.87	14.54	13 – 15
4	Voids in Compacted Mix	3.21	4.25	3 – 6
5	Percent Voids filled with Bitumen	70.52	71.16	65 - 75
6	Density, g/cc	2.22	2.23	--

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Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 20.04.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	M/S **M S V Construction Company,** Contractor, Bangalore.
Name of the Work	:	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	20.04.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.75	10.15	9 Kn (min)
2	Marshal flow, mm	3.25	3.5	2 – 4
3	Percent air voids in Mineral Aggregate	14.1	14.25	13 – 15
4	Voids in Compacted Mix	4.1	4.12	3 – 6
5	Percent Voids filled with Bitumen	67.29	69.12	65 - 75
6	Density, g/cc	2.21	2.24	--

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 21.04.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	M/S **M S V Construction Company,** Contractor, Bangalore.
Name of the Work	:	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	21.04.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	10.52	9.85	9 Kn (min)
2	Marshal flow, mm	3.76	2.45	2 – 4
3	Percent air voids in Mineral Aggregate	13.65	14.52	13 – 15
4	Voids in Compacted Mix	3.87	4.61	3 – 6
5	Percent Voids filled with Bitumen	70.21	71.15	65 - 75
6	Density, g/cc	2.25	2.26	--

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 21.04.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	M/S **M S V Construction Company,** Contractor, Bangalore.
Name of the Work	:	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	21.04.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.44	10.28	9 Kn (min)
2	Marshal flow, mm	2.69	2.99	2 – 4
3	Percent air voids in Mineral Aggregate	13.45	14.81	13 – 15
4	Voids in Compacted Mix	3.84	4.51	3 – 6
5	Percent Voids filled with Bitumen	69.29	71.12	65 - 75
6	Density, g/cc	2.25	2.25	--

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For CIVIL AIM CONSULTANTS & ENGINEERS

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Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 22.04.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	M/S **M S V Construction Company,** Contractor, Bangalore.
Name of the Work	:	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	22.04.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.36	10.87	9 Kn (min)
2	Marshal flow, mm	2.97	3.45	2 – 4
3	Percent air voids in Mineral Aggregate	13.65	14.57	13 – 15
4	Voids in Compacted Mix	3.92	4.20	3 – 6
5	Percent Voids filled with Bitumen	69.43	70.17	65 - 75
6	Density, g/cc	2.25	2.26	--

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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 18.04.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	M/S M S V Construction Company, Contractor, Bangalore.
NAME OF THE WORK	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	18.04.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472.5	472
3. Weight of Asphalt and Mineral matter Extracted, g	27.5	28
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	27.5	28
7. Bitumen content in %	5.50	5.60
8. Average	5.55	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	14.3	14.3	3.0	97.0	90 - 100
9.5	65.2	79.5	16.8	83.2	70 - 88
4.75	91.2	170.7	36.1	63.9	53 - 71
2.36	46.1	216.8	45.9	54.1	42 - 58
1.18	35.7	252.5	53.4	46.6	34 - 48
0.600	55.1	307.6	65.1	34.9	26 - 38
0.300	42.5	350.1	74.1	25.9	18 - 28
0.150	34.4	384.5	81.4	18.6	12 - 20
0.075	45.1	429.6	90.9	9.1	4 - 10

SIEVE SIZE mm	Test 2 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	15.2	15.2	3.2	96.8	90 - 100
9.5	66.2	81.4	17.2	82.8	70 - 88
4.75	92.8	174.2	36.9	63.1	53 - 71
2.36	45.3	219.5	46.5	53.5	42 - 58
1.18	48.2	267.7	56.7	43.3	34 - 48
0.600	56.3	324	68.6	31.4	26 - 38
0.300	45.8	369.8	78.3	21.7	18 - 28
0.150	37.9	407.7	86.4	13.6	12 - 20
0.075	32.6	440.3	93.3	6.7	4 - 10

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For CIVIL AIM CONSULTANTS & ENGINEERS

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Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 18.04.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	M/S M S V Construction Company, Contractor, Bangalore.
NAME OF THE WORK	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	18.04.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472.5	472
3. Weight of Asphalt and Mineral matter Extracted, g	27.5	28
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	27.5	28
7. Bitumen content in %	5.50	5.60
8. Average	5.55	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	12.8	12.8	2.7	97.3	90 - 100
9.5	68.9	81.7	17.3	82.7	70 - 88
4.75	92.6	174.3	36.9	63.1	53 - 71
2.36	42.5	216.8	45.9	54.1	42 - 58
1.18	36.8	253.6	53.7	46.3	34 - 48
0.600	50.9	304.5	64.4	35.6	26 - 38
0.300	46.3	350.8	74.2	25.8	18 - 28
0.150	35.8	386.6	81.8	18.2	12 - 20
0.075	46.9	433.5	91.7	8.3	4 - 10

SIEVE SIZE mm	Test 2				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	13.2	13.2	2.8	97.2	90 - 100
9.5	62.8	76	16.1	83.9	70 - 88
4.75	90.9	166.9	35.4	64.6	53 - 71
2.36	46.5	213.4	45.2	54.8	42 - 58
1.18	43.8	257.2	54.5	45.5	34 - 48
0.600	52.4	309.6	65.6	34.4	26 - 38
0.300	49.3	358.9	76.0	24.0	18 - 28
0.150	35.6	394.5	83.6	16.4	12 - 20
0.075	40.8	435.3	92.2	7.8	4 - 10

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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

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An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 19.04.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	M/S M S V Construction Company, Contractor, Bangalore.
NAME OF THE WORK	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	19.04.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472	473
3. Weight of Asphalt and Mineral matter Extracted, g	28	27
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	28	27
7. Bitumen content in %	5.60	5.40
8. Average	5.50	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	14.7	14.7	3.1	96.9	90 - 100
9.5	65.6	80.3	17.0	83.0	70 - 88
4.75	90.5	170.8	36.2	63.8	53 - 71
2.36	46.5	217.3	46.0	54.0	42 - 58
1.18	36	253.3	53.7	46.3	34 - 48
0.600	55.9	309.2	65.5	34.5	26 - 38
0.300	43	352.2	74.6	25.4	18 - 28
0.150	35.1	387.3	82.1	17.9	12 - 20
0.075	43.1	430.4	91.2	8.8	4 - 10

SIEVE SIZE mm	Test 2 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	15.5	15.5	3.3	96.7	90 - 100
9.5	66	81.5	17.2	82.8	70 - 88
4.75	92.6	174.1	36.8	63.2	53 - 71
2.36	45.1	219.2	46.3	53.7	42 - 58
1.18	48.1	267.3	56.5	43.5	34 - 48
0.600	56.1	323.4	68.4	31.6	26 - 38
0.300	45.6	369	78.0	22.0	18 - 28
0.150	38.5	407.5	86.2	13.8	12 - 20
0.075	31.6	439.1	92.8	7.2	4 - 10

Note:

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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

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BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	M/S M S V Construction Company, Contractor, Bangalore.
NAME OF THE WORK	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	19.04.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472	472
3. Weight of Asphalt and Mineral matter Extracted, g	28	28
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	28	28
7. Bitumen content in %	5.60	5.60
8. Average	5.60	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	13.4	13.4	2.8	97.2	90 - 100
9.5	69.1	82.5	17.5	82.5	70 - 88
4.75	92.1	174.6	37.0	63.0	53 - 71
2.36	42.2	216.8	45.9	54.1	42 - 58
1.18	37	253.8	53.8	46.2	34 - 48
0.600	51.1	304.9	64.6	35.4	26 - 38
0.300	46.5	351.4	74.4	25.6	18 - 28
0.150	35.1	386.5	81.9	18.1	12 - 20
0.075	47.1	433.6	91.9	8.1	4 - 10

SIEVE SIZE mm	Test 2 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	13.7	13.7	2.9	97.1	90 - 100
9.5	62.5	76.2	16.1	83.9	70 - 88
4.75	91.1	167.3	35.4	64.6	53 - 71
2.36	46.7	214	45.3	54.7	42 - 58
1.18	43.5	257.5	54.6	45.4	34 - 48
0.600	52.1	309.6	65.6	34.4	26 - 38
0.300	49.1	358.7	76.0	24.0	18 - 28
0.150	35.2	393.9	83.5	16.5	12 - 20
0.075	40.5	434.4	92.0	8.0	4 - 10

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Date : 20.04.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	M/S M S V Construction Company, Contractor, Bangalore.
NAME OF THE WORK	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	20.04.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472.5	473
3. Weight of Asphalt and Mineral matter Extracted, g	27.5	27
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	27.5	27
7. Bitumen content in %	5.50	5.40
8. Average	5.45	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	18.2	18.2	3.9	96.1	90 - 100
9.5	66.2	84.4	17.9	82.1	70 - 88
4.75	91.3	175.7	37.2	62.8	53 - 71
2.36	45.9	221.6	46.9	53.1	42 - 58
1.18	36.1	257.7	54.5	45.5	34 - 48
0.600	55.9	313.6	66.4	33.6	26 - 38
0.300	43.1	356.7	75.5	24.5	18 - 28
0.150	35.1	391.8	82.9	17.1	12 - 20
0.075	41.5	433.3	91.7	8.3	4 - 10

SIEVE SIZE mm	Test 2				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	17.5	17.5	3.7	96.3	90 - 100
9.5	65.9	83.4	17.6	82.4	70 - 88
4.75	92.5	175.9	37.2	62.8	53 - 71
2.36	45.9	221.8	46.9	53.1	42 - 58
1.18	48.9	270.7	57.2	42.8	34 - 48
0.600	56.9	327.6	69.3	30.7	26 - 38
0.300	47.1	374.7	79.2	20.8	18 - 28
0.150	38.1	412.8	87.3	12.7	12 - 20
0.075	31.5	444.3	93.9	6.1	4 - 10

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BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	M/S M S V Construction Company, Contractor, Bangalore.
NAME OF THE WORK	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	20.04.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472.5	472.5
3. Weight of Asphalt and Mineral matter Extracted, g	27.5	27.5
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	27.5	27.5
7. Bitumen content in %	5.50	5.50
8. Average	5.50	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	17.2	17.2	3.6	96.4	90 - 100
9.5	69.1	86.3	18.3	81.7	70 - 88
4.75	92.2	178.5	37.8	62.2	53 - 71
2.36	42.2	220.7	46.7	53.3	42 - 58
1.18	36.6	257.3	54.5	45.5	34 - 48
0.600	50	307.3	65.0	35.0	26 - 38
0.300	46.6	353.9	74.9	25.1	18 - 28
0.150	35.5	389.4	82.4	17.6	12 - 20
0.075	46.5	435.9	92.3	7.7	4 - 10

SIEVE SIZE mm	Test 2 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	14.4	14.4	3.0	97.0	90 - 100
9.5	62.2	76.6	16.2	83.8	70 - 88
4.75	89.9	166.5	35.2	64.8	53 - 71
2.36	46.5	213	45.1	54.9	42 - 58
1.18	43.5	256.5	54.3	45.7	34 - 48
0.600	52.2	308.7	65.3	34.7	26 - 38
0.300	49.9	358.6	75.9	24.1	18 - 28
0.150	35.5	394.1	83.4	16.6	12 - 20
0.075	40.2	434.3	91.9	8.1	4 - 10

For CIVIL AIM CONSULTANTS & ENGINEERS

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 21.04.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	M/S M S V Construction Company, Contractor, Bangalore.
NAME OF THE WORK	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	21.04.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472.5	473
3. Weight of Asphalt and Mineral matter Extracted, g	27.5	27
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	27.5	27
7. Bitumen content in %	5.50	5.40
8. Average	5.45	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	18.1	18.1	3.8	96.2	90 - 100
9.5	64.9	83	17.6	82.4	70 - 88
4.75	91.3	174.3	36.9	63.1	53 - 71
2.36	48.2	222.5	47.1	52.9	42 - 58
1.18	36.8	259.3	54.9	45.1	34 - 48
0.600	57.6	316.9	67.1	32.9	26 - 38
0.300	43.3	360.2	76.2	23.8	18 - 28
0.150	35.9	396.1	83.8	16.2	12 - 20
0.075	40.1	436.2	92.3	7.7	4 - 10

SIEVE SIZE mm	Test 2 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	16.5	16.5	3.5	96.5	90 - 100
9.5	65.2	81.7	17.3	82.7	70 - 88
4.75	92.1	173.8	36.7	63.3	53 - 71
2.36	45.1	218.9	46.3	53.7	42 - 58
1.18	48.9	267.8	56.6	43.4	34 - 48
0.600	56	323.8	68.5	31.5	26 - 38
0.300	44.8	368.6	77.9	22.1	18 - 28
0.150	37.1	405.7	85.8	14.2	12 - 20
0.075	31.6	437.3	92.5	7.5	4 - 10

For CIVIL AIM CONSULTANTS & ENGINEERS

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 21.04.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	M/S M S V Construction Company, Contractor, Bangalore.
NAME OF THE WORK	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	21.04.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472	472.5
3. Weight of Asphalt and Mineral matter Extracted, g	28	27.5
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	28	27.5
7. Bitumen content in %	5.60	5.50
8. Average	5.55	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	16.7	16.7	3.5	96.5	90 - 100
9.5	66.6	83.3	17.6	82.4	70 - 88
4.75	92.2	175.5	37.2	62.8	53 - 71
2.36	42.9	218.4	46.3	53.7	42 - 58
1.18	37.5	255.9	54.2	45.8	34 - 48
0.600	51.9	307.8	65.2	34.8	26 - 38
0.300	46.6	354.4	75.1	24.9	18 - 28
0.150	35.5	389.9	82.6	17.4	12 - 20
0.075	46.6	436.5	92.5	7.5	4 - 10

SIEVE SIZE mm	Test 2 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	17.4	17.4	3.7	96.3	90 - 100
9.5	62.1	79.5	16.8	83.2	70 - 88
4.75	91.9	171.4	36.3	63.7	53 - 71
2.36	46	217.4	46.0	54.0	42 - 58
1.18	43.1	260.5	55.1	44.9	34 - 48
0.600	51.1	311.6	65.9	34.1	26 - 38
0.300	48.1	359.7	76.1	23.9	18 - 28
0.150	34.6	394.3	83.4	16.6	12 - 20
0.075	41.8	436.1	92.3	7.7	4 - 10

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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 22.04.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	M/S M S V Construction Company, Contractor, Bangalore.
NAME OF THE WORK	Entrustment of work "Asphalting to roads at Defence Colony and Surrounding area in ward no.14 Bagalagunte," BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	22.04.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472	472
3. Weight of Asphalt and Mineral matter Extracted, g	28	28
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	28	28
7. Bitumen content in %	5.60	5.60
8. Average	5.60	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	15.8	15.8	3.3	96.7	90 - 100
9.5	66.3	82.1	17.4	82.6	70 - 88
4.75	89.4	171.5	36.3	63.7	53 - 71
2.36	45	216.5	45.9	54.1	42 - 58
1.18	35.8	252.3	53.5	46.5	34 - 48
0.600	54.3	306.6	65.0	35.0	26 - 38
0.300	41.8	348.4	73.8	26.2	18 - 28
0.150	35.3	383.7	81.3	18.7	12 - 20
0.075	41.2	424.9	90.0	10.0	4 - 10

SIEVE SIZE mm	Test 2 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	16.2	16.2	3.4	96.6	90 - 100
9.5	66.2	82.4	17.5	82.5	70 - 88
4.75	92.8	175.2	37.1	62.9	53 - 71
2.36	45.3	220.5	46.7	53.3	42 - 58
1.18	48.2	268.7	56.9	43.1	34 - 48
0.600	56.3	325	68.9	31.1	26 - 38
0.300	45.8	370.8	78.6	21.4	18 - 28
0.150	37.9	408.7	86.6	13.4	12 - 20
0.075	32.6	441.3	93.5	6.5	4 - 10

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Note:

- This test report should not be reproduced except in full, without written approval of the laboratory
- The results indicated above are based on the tests carried out on the samples collected at the site.
- Any Query regarding the report must be reported within 30 days from the date of testing

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

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